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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,791	01/13/2006	Tomoyuki Takada	SHIGA3.008APC	3346

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EXAMINER	
PIERY, MICHAEL T	

ART UNIT	PAPER NUMBER
1742	

NOTIFICATION DATE	DELIVERY MODE
10/18/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/564,791	TAKADA ET AL.	
	Examiner	Art Unit	
	MICHAEL PIERY	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1,3,4,6,7 and 10* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1,3,4,6,7 and 10* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *13 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/GB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1, 3, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 7,120,342) in view of Mauk et al. (6,166,094).

Regarding claim 1, Chang teaches forming a foamable composition into a sheath shape having a thickness of 1 micrometer to 10 mm (column 6, lines 59-64), the composition having an

acid generator that generates acid due to the action of an active energy beam (column 2, line 1 - sulfonium salt) and a polymeric decomposing foamable functional group that decomposes and eliminates a low boiling point substance by reacting with the acid (column 3, lines 45-55 – urethane acrylate oligomer), irradiating the composition and foaming the composition (column 9, lines 36-43) wherein the foamable functional group is a urethane group (column 3, lines 45-55). Chang does not explicitly teach the composition is formed into a sheet. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang to form the composition into a sheet rather than a sheath since it has been held that change in shape is an obvious choice one in the art would have found obvious (MPEP 2144.04). Chang does not explicitly teach the foamable functional group is a tert-butyl group. Mauk, however, teaches common foamable functional groups include tert-butyl groups (column 13, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang to use a tert-butyl group because it has been held that selection of a known material (tert-butyl foamable functional group) based on its art recognized suitability for its intended purpose (foaming) is *prima facie* obvious (MPEP 2144.07). With regard to the mean light reflectance of the sheet relative to incident light, the examiner recognizes that all of the claimed effects and physical properties are not positively stated by the reference. Note however that the references teach all of the claimed ingredients, process steps, and process conditions, and thus, the claimed effects and physical properties (mean light reflectance) would inherently be achieved by carrying out the disclosed process. If it is applicant's position that this would not be the case: (1) evidence would need to be presented to support applicant's position, and (2) it would be the examiner's position that the application contains inadequate disclosure in that there

is no teaching as to how to obtain the claimed properties and effects by carrying out only the claimed steps.

Regarding claim 3, Chang teaches the sheet is heated as necessary (in the instant case no heating is necessary) and irradiated (column 9, lines 36-43).

Regarding claim 7, Chang teaches the foamable composition is formed into a thickness of 1 to 100 micrometers (column 6, lines 59-64).

Regarding claim 10, Chang does not explicitly teach the foam expansion ratio. The foam expansion ratio, however, is dependent upon variables including the amount of foaming agent (column 3, lines 25-33). Because Chang suggests the amount of foaming agent can be optimized (column 3, lines 25-33), it would have been obvious to one of ordinary skill in the art at the time of the invention to discover the optimum foaming ratio because it has been held that where the general conditions of a claim are disclosed, finding the optimum workable range of a result effective variable is prima facie obvious (MPEP 2144.05).

3. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 7,120,342) in view of Mauk et al. (6,166,094), as applied to claim 1 above, and further in view of Hiroshi et al. (JP 08-325401, citations refer to attached machine translation).

Regarding claim 4, Chang does not explicitly teach the sheet is formed by extrusion. However, Hiroshi teaches irradiating to foam a sheet where the sheet was formed using extrusion (paragraph 0032). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang because extrusion is a known efficient and reliable method to form a sheet.

Regarding claim 6, Chang does not explicitly teach the sheet is foamed by heating after irradiating. However, Hiroshi teaches it is known to foam a sheet by heating after irradiating (paragraph 0077). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang to include the heating step of Hiroshi because heating enhances the foaming of the sheet.

Response to Arguments

Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant argues that the cited references do not disclose or suggest a mean light reflectance of the sheet. The examiner disagrees. As discussed above, because the combination of references teaches all of claimed process steps, the combination inherently discloses the properties of the product that result from the claimed process.

Applicant argues that there would not have been any reason to combine the references. The examiner disagrees. Both references are related to foaming technology. One in the art would have recognized that foaming methods and ingredients can be applied to numerous foaming products.

Applicant argues the levels of mean light reflectance achieved are unexpected results and there are a number of other unexpected advantages that render the combination nonobvious. The examiner notes the burden is on the applicant to establish the results are unexpected and significant (MPEP 716.02(b)). Mere conclusory statements of unexpected results do not meet this burden (MPEP 716.02(b)(I)).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PIERY whose telephone number is (571)270-5047. The examiner can normally be reached on M-F 10-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael T Piery/
Examiner, Art Unit 1742
/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1742